



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Washington, D.C. 20240

DIRECTOR'S ORDER NO. 151

Subject: Load Securement when Transporting Heavy and Light Duty Equipment

Sec. 1 What is the purpose of this Order? This Order provides safety standards, guidelines, and training criteria for transporting heavy and light duty equipment.

Sec. 2 To whom does this Order apply? This Order applies to employees, volunteers, other Federal agency personnel, and contract employees involved with loading, securing, or transporting heavy and light duty equipment. This Order does not apply to contractors operating or transporting their own heavy or light duty equipment within the scope of an awarded contract or written agreement. Such contractors must comply with applicable Federal, State, and/or local load securement transportation requirements.

Sec. 3 What are the authorities for this Order? 49 CFR 392 and 393.

Sec. 4 What terms do I need to know?

a. **Heavy duty equipment.** Includes crawler-dozers, crawler-loaders, four-wheel-drive loaders (articulating or straight-frame), motor graders (articulating or straight-frame), draglines, power excavators, motor cranes, heavy-duty farm tractors (all four-wheel-drive tractors, or wheeled or tracked tractors over 65 horse power at the flywheel) as identified in 321 FW 1. Heavy duty equipment also encompasses equipment with weight, size, and/or configurations that necessitate the use of load securement devices to safely transport the item (trail cutters, brush cutters, etc.).

b. **Light duty equipment.** Includes light-duty farm tractors, front-end loaders/backhoes, and forklifts as identified in 321 FW 1.

c. **Working load limit (WLL).** The maximum load that you may apply during normal service, and usually assigned by the manufacturer of the component (for chains see the table in 49 CFR 393.102(b)(6)).

d. **Aggregate working load limit.** The total of all the WLL of all devices used in the tie-down assembly (e.g., four tie-down assemblies, each graded/rated at 6,600 pounds, equal an aggregate WLL of 26,400 pounds).

Sec. 5 Is there other guidance on load securement? Use the Service's Heavy Duty Equipment Operator's Safety Manual (available from your heavy equipment coordinator) and the manufacturer's equipment operation manual to supplement this guidance. You must be aware of all applicable State Department of Transportation (DOT) regulations. State regulations and local guidelines that impose more restrictive requirements than this Director's Order will take precedence.

Sec. 6 What load securement practices must I follow?

a. Determine the size of the chain to use by the weight of the equipment that you are transporting and the WLL of the chain and other tie-down components. The size/grade/strength of all tie-down components must, at a minimum, meet the requirements in section 7.

b. The aggregate WLL of the tie-down assemblies used to secure an article against movement in any direction must be at least half the weight of the article (49 CFR 393.102). If any State DOT programs require tie-down assemblies to equal more than half the weight of the article you are transporting, the State requirements supersede this Director's Order.

c. Attach and secure each tie-down in a manner that prevents it from becoming loose, unfastened, open, or released while the vehicle is in transit. Place chain assemblies at a 45-degree angle with the trailer bed, with a minimum of four separate tie-downs for the equipment, and two additional for any attachments/implements. Place rear tie-downs in a criss-cross fashion to prevent the equipment from moving forward, backward, and side to side. DOT requires a tie-down assembly every 10 feet (3 m) of the equipment/cargo length. Do not use cold shuts (devices to join links of a chain) to extend the working length of a chain or as a component of any tie-down assembly.

d. Use all tie-downs to secure loads on trailers equipped with rub rails. Locate the tie-downs inboard at the rub rails whenever practical.

e. Where edges contact equipment edges and those edges have the ability to damage securement devices (cause abrasion or cutting), use edge protection.

f. Use securable blocking and bracing (e.g., wheel/track chocks) in conjunction with tie-down components. Securable chocks have chains or straps that attach to the loaded equipment or trailer and will not become easily displaced or become a falling object during transportation. Use chocks, wedges, cradles, or other equivalent means to restrain equipment that is likely to roll. Chocks must not be capable of becoming unintentionally unfastened or loose while the vehicle is in transit.

Sec. 7 What is the standard for tie-down assemblies? You must ensure that you have properly graded and rated tie-down components for your hauled loads. There are many grades, sizes, and strengths of tie-down components available on the market. The following component specifications are the minimum standard for all tie-down assemblies. The load being transported may require higher grade/rate/strength components.

a. Chain grade - grade 7 transport with grade identification markings of "7," "70," or "700."

b. Chain size - 3/8 inch (.9375 cm).

c. Chain WLL - 6,600 pounds.

d. Hook grade/strength/design - must have the same as or greater WLL as the chain being used (preferably grade 70) and of the "clevis-type grab hook" design.

- e. Ratchet load binder - must have the same as or greater WLL as the chain being used.

Sec. 8 Can chains be used for other purposes? Do not use chains designed for equipment transportation tie-downs for any other tasks (e.g., lifting pipes, pulling stumps, etc.). If you use rated or designated chains incorrectly for work purposes, hidden or hard-to-detect damage may result that could adversely affect the chain's WLL.

Sec. 9 What actions must I take prior to transport?

- a. Lower and secure to the vehicle all accessory equipment, such as hydraulic shovels.
- b. Restrain articulated vehicles in a manner that prevents articulation while in transit.
- c. Restrain equipment or machinery with crawler tracks or wheels against movement in the lateral, forward, rearward, and vertical directions with each tie-down affixed as practicable to the front, side, and rear of the equipment or its securement points.
- d. Prior to each use, visually inspect (or have inspected) all components (chains, straps, hooks, securable chocks and blocks, and ratchet load binders) of the tie-down assemblies you currently use for heavy and light duty equipment transportation. Check for broken or cracked links; nicks; gouges; abrasions; wear knots; and twisted, bent, or stretched links/sections. Chain securement points (D-rings, etc.) on the trailer or truck being used must also meet the WLL requirements. Also check critical areas of a chain—the portions typically used at the trailer's tie-down points, since this is where the chain is most stressed when the hook is fastened into it.

Sec. 10 Do drivers have to inspect the load during transport? Drivers must inspect the loaded equipment and the load securement devices used to secure the cargo within the first 5 miles after beginning a trip. If there has been any movement, make needed adjustments to the equipment or load securement devices, including adding more securement devices to ensure the equipment cannot shift on or within, or fall from, the transport vehicle. If you have driven the transporting vehicle for 3 hours or 150 miles, whichever comes first, you must reexamine the equipment and its load securement devices and make any necessary adjustments.

Sec. 11 Is there an inspection program for tie-down assemblies?

- a. Project leaders/supervisors must establish a semiannual tie-down assembly inspection program. Inspect tie-down assemblies for size, WLL, and condition of each component. Maintain in an appropriate file the following information, at a minimum, to document each inspection: date of inspection, condition of specific components, and who did the inspection (including signature).
- b. Remove from service any tie-down component that exhibits signs of excessive wear that could diminish the WLL. Use DI-103A (Certificate of Unserviceable Property) to document equipment removed from service. In addition, maintain a disposition status log (index) for the files.

Sec. 12 Is there mandatory training on load securement? Project leaders/supervisors must ensure that all new employees involved with heavy and light duty equipment transportation receive certification training as soon as possible on the requirements in section 6, especially the appropriate size of chain, aggregate WLL of tie-down assemblies, and placement of tie-down assemblies. Employees must take recertification training every 3 years.

Sec. 13 What is the effective date of this Order? This Order is effective immediately. We will include its contents in 241 FW 2 of the Fish and Wildlife Service Manual. This Order will expire on June 30, 2004, unless amended, superseded, or revoked.


Acting DIRECTOR

Date: June 30, 2003